

Amendments to the Claims

The listing of claims below is intended to replace all prior listings of the claims in the present application.

1. (canceled)

2. (currently amended): A non-human ~~mammal showing a phenotype of autoimmune disease through production of an antibody reacting to an antigen protein for an autoimmune disease or T cell activation, wherein mammalian recipient to which~~ immune cells from a non-human ~~mammal lacking an antigen gene for the autoimmune disease have been transplanted to the non-human mammal~~ mammalian donor have been transplanted, wherein the donor (a) lacks a gene encoding an antigen protein of an autoimmune disease and (b) develops immune cells, and wherein the recipient (i) is the same species as the donor, (ii) has the same genetic background and/or is immunodeficient, and (iii) following the transplantation, produces an antibody reactive to the antigen protein and/or has activated T cells reactive to the antigen protein.

3. (currently amended): A non-human mammalian recipient to which mammal showing a phenotype of autoimmune disease through production of an antibody reacting to an antigen protein for an autoimmune disease or T cell activation, wherein immune cells from a non-human mammal that lacks the antigen gene for the autoimmune disease and that has been immunized with the antigen protein have been transplanted to the non-human mammal mammalian donor have been transplanted, wherein the donor (a) lacks a gene encoding an antigen protein of an autoimmune disease, (b) develops immune cells and (c) has been immunized with the antigen protein, and wherein the recipient (i) is the same species to the donor, (ii) has the same genetic background and/or is immunodeficient, and (iii) following the transplantation, produces an antibody reactive to the antigen protein and/or has activated T cells reactive to the antigen protein.

4. (currently amended): The non-human mammal recipient of claim 2, wherein the immune cells are transplanted to an immunodeficient non-human mammal the recipient is immunodeficient.

5. (currently amended): The ~~non-human mammal recipient~~ of claim 4, wherein the ~~immunodeficient non-human mammal is a non-human mammal that~~ ~~recipient lacks the a~~ RAG2 gene.

6. (currently amended): The ~~non-human mammal recipient~~ of claim 2, wherein the immune cells are splenocytes.

7. (currently amended): The ~~non-human mammal recipient~~ of claim 2, wherein the autoimmune disease is pemphigus vulgaris.

8. (currently amended): The ~~non-human mammal recipient~~ of claim 7, wherein the antigen protein is desmoglein 3 protein.

9. (currently amended): The ~~non-human mammal recipient~~ of claim 2, wherein the ~~non-human mammal recipient~~ is a rodent.

10. (currently amended): The ~~non-human mammal recipient~~ of claim 9, wherein the rodent is a mouse.

11. (currently amended): A method for producing a non-human ~~mammalian recipient showing a phenotype of autoimmune disease through production of that produces an antibody reacting reactive to an antigen protein for an autoimmune disease and/or has activated T [cell] cells activation reactive to the antigen protein~~, which comprises the steps of:

(a) immunizing, with the antigen protein for the autoimmune disease, a non-human ~~mammal that lacks the antigen gene for the autoimmune disease mammalian donor that (i) lacks a gene encoding the antigen protein and (ii) develops immune cells,~~

(b) preparing immune cells from the ~~non-human mammal donor~~, and

(c) transplanting the immune cells to a ~~non-human mammal having the antigen protein the recipient that (iii) is the same species to the donor, and (iv) has the same genetic background and/or is immunodeficient, thereby producing a non-human a mammalian~~

recipient that produces an antibody reactive to an antigen protein for an autoimmune disease and/or has activated T cells activation reactive to the antigen protein.

12. (currently amended): The method of claim 11, wherein ~~the immune cells are transplanted to an~~ the recipient is immunodeficient non-human mammal.

13. (currently amended): The method of claim 12, wherein ~~the immunodeficient non-human mammal is a non-human mammal that~~ recipient lacks the a RAG2 gene.

14. (previously amended): The method of claim 11, wherein the immune cells are splenocytes.

15. (previously amended): The method of claim 11, wherein the autoimmune disease is pemphigus vulgaris.

16. (original): The method of claim 15, wherein the antigen protein is desmoglein 3 protein.

17. (currently amended): The method of claim 11, wherein ~~the non-human mammal~~ recipient is a rodent.

18. (original): The method of claim 17, wherein the rodent is a mouse.

19. (currently amended): The ~~non-human mammal~~ recipient of claim 3, wherein ~~the recipient is immune cells are transplanted to an~~ immunodeficient ~~non-human mammal.~~

20. (currently amended): The ~~non-human mammal~~ recipient of claim 19, wherein ~~the immunodeficient non-human mammal is a non-human mammal that~~ recipient lacks the a RAG2 gene.

21. (currently amended) The ~~non-human mammal~~ recipient of claim 3,
wherein the immune cells are splenocytes.

22. (currently amended): The ~~non-human mammal~~ recipient of claim 3,
wherein the autoimmune disease is pemphigus vulgaris.

23. (currently amended): The ~~non-human mammal~~ recipient of claim 22,
wherein the antigen protein is desmoglein 3 protein.

24. (currently amended): The ~~non-human mammal~~ recipient of claim 3,
wherein the ~~non-human mammal~~ recipient is a rodent.

25. (currently amended): The ~~non-human mammal~~ recipient of claim 24,
wherein the rodent is a mouse.
